



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/590,289 | 08/23/2006 | Hiroshi Yoshida | 062814 | 8079 |
| 38834 7590 07/11/2008 WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP 1250 CONNECTICUT AVENUE, NW SUITE 700 WASHINGTON, DC 20036 | | | | |
| EXAMINER | | | | |
| KOSLOW, CAROL M | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 1793 | | | | |
| MAIL DATE | | DELIVERY MODE | | |
| 07/11/2008 | | PAPER | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/590,289

Applicant(s)

YOSHIDA ET AL.

Examiner

C. Melissa Koslow

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE-08)
- Paper No(s)/Mail Date 8/23/06
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

The Japanese language references cited in the information disclosure statement of 23 August 2006 have been considered with respect to the explanation of these references given in the specification, the supplied PCT search report and/or the provided English abstracts.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 and 3-10 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2 and 5 of U.S. Patent No. 6,896,731. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the patent teach a thin film single crystal ZnO doped with a p-type dopant and at least one of B, Al, Ga, In, F and Cl, which are elements having an incomplete outermost p-electron shell. The patented claims teach the film is formed by a deposition method where the dopants are added. Since the patented compound and process are identical to claims 1, 3, 4 and 6 of this application, the patented compound must inherently be transparent and ferromagnetic,

where the ferromagnetic transition temperature is room temperature or higher and the process gives properties of claims 5 and 7-10.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent 5,169,799 or U.S. patent 3,203,899.

U.S. patent 5,169,799 teaches a ZnSe single crystal containing a dopant dissolved therein, where the dopant can be Al, Cl, Ga, In, P, As, N, F or I, which are elements having an incomplete outmost p-electron shell. U.S. patent 3,203,899 teaches single crystals of lead doped or dissolved in Group II-VII₂ compounds. Lead is an element having an incomplete outmost p-electron shell. Since the taught compound is identical to that claimed, the taught composition must inherently be transparent and ferromagnetic, where the ferromagnetic transition temperature is room temperature or higher, absent any showing to the contrary. The reference teaches the claimed compound.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Chem abstract citation 89:171165; 119:283888 or 133:35648

These abstracts teach single crystals of MgO doped with Ge (133:35648); single crystal doped with Al or Si (119: 283888) and single crystals of MgO, SrO or CaO, each doped with one of Al, F, Cl or Si. The dopant is dissolved in the oxide and Ge, Al, Si, Cl and F are elements

having an incomplete outmost p-electron shell. Since the taught compounds are identical to that claimed, the taught composition must inherently be transparent and ferromagnetic, where the ferromagnetic transition temperature is room temperature or higher, absent any showing to the contrary. The references teach the claimed compounds.

Claims 1, 4, 5 and 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent 2,953,529; 3,203,899; 3,462,323; 3,846,191; 3,850,685 or 6,537,369; WO 01/73852 or U.S. patent application publication 2002/0089023.

U.S. patent 6,537,369 is the national stage application for WO 01/73852 and thus is the translation for WO 01/73852.

All of these references teach thin films formed by a deposition process, of single crystals containing dopants having an incomplete outmost p-electron shell dissolved there. U.S. patent 2,953,529 teaches Ge-Si alloys doped with In. U.S. patent 3,462,323 teaches III-V compounds doped with a second Group III or Group V element and it teaches Mg, Zn, Hg or Cd chalcogenides doped with a second chalcogenide element. U.S. patent 3,846,191 teaches gallium arsenide doped with aluminum. U.S. patent 3,850,685 teaches InSb doped with arsenic. WO 01/73852 and U.S. patent 6,537,369 teach boron doped silicon germanium carbide. U.S. patent application publication 2002/0089023 teaches nitrogen doped metal oxides, where the metal can be Sr, Ti, Ba, Ca, Mg, Zr, Li, Na, K, Cs, Rb, Be, Zn, Cd, Hg, Sn and Pb. The taught compounds and process are identical to that claimed. Therefore the taught compounds must inherently be transparent and ferromagnetic, where the ferromagnetic transition temperature is room temperature or higher and the process gives the properties of claims 5 and 7-10, absent any showing to the contrary. The references teach the claimed compound and process.

Claims 1 and 3-10 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent 5,891,243 or 6,527,858 or WO 01/12884.

Claims 1 and 3-10 are rejected under 35 U.S.C. 102(a) as being anticipated by U.S. patent 6,896,731.

U.S. patent 6,896,731 is the national stage application for WO 01/12884 and thus is the translation for WO 01/12884.

All of these references teach thin films formed by a deposition process, of single crystals containing dopants having an incomplete outmost p-electron shell dissolved there and either a n-type or p-type dopant. WO 01/12884 and U.S. patent 6,896,731 teaches ZnO doped with a p-type dopant selected from Li, Na, C and a n-type dopant selected from Zn, H, B, Al, Ga, In, F and Cl. N, C, Al, B, Ga, In, F and Cl are elements having an incomplete outermost p-electron shell. U.S. patent 6,527,858 teaches ZnO doped with N (n-type) and Ga (p-type). Both of the dopants have an incomplete outmost p-electron shell. U.S. patent 5,891,243 teaches ZnSe doped with N (n-type) and In. Both of the dopants have an incomplete outmost p-electron shell. The taught compounds and process are identical to that claimed. Therefore the taught compounds must inherently be transparent and ferromagnetic, where the ferromagnetic transition temperature is room temperature or higher and the process gives the properties of claims 5 and 7-10, absent any showing to the contrary. The references teach the claimed compound and process.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/cmk/
July 10, 2008

/C. Melissa Koslow/
Primary Examiner
Art Unit 1793